

## CLAIMS

1. A method for the encapsulation of a nuclear material which comprises treating the material with an encapsulant which comprises a cementitious material and curing said cementitious material.  
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2. A method as claimed in claim 1 wherein the nuclear fuel material comprises uranium metal or Magnox fuel elements or fuel element debris.
- 10 3. A method as claimed in claim 1 or 2 wherein the cementitious material comprises Portland Cement.
4. A method as claimed in any one of claims 1, 2 or 3 wherein the cementitious material additionally comprises one or more inorganic fillers selected from  
15 blast furnace slag, pulverised fuel ash, hydrated lime, finely divided silica, limestone flour and organic and inorganic fluidising agents.
5. A method as claimed in any preceding claim wherein the cementitious material is provided in the form of an aqueous composition.  
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6. A method as claimed in claim 5 wherein the water content of the composition is in the region of 40-50% (w/w).
7. A method as claimed in any preceding claim wherein the nuclear material is  
25 placed in an appropriate container and a cementitious material is added and allowed to at least partially cure.
8. A method as claimed in claim 7 wherein elements of the nuclear material are  
30 either arrayed in the container or mixed haphazardly.

9. A method as claimed in claim 7 or 8 wherein the container is subsequently capped.
10. A method as claimed in claim 7, 8 or 9 wherein the container comprises a drum having a capacity in the region of 500 litres.
11. A method as claimed in claim 10 wherein the amount of nuclear material stored is up to 52 elements.
12. A method as claimed in claim 11 wherein the number of elements is of the order of 22.
13. A method for the storage of a nuclear material which comprises encapsulation of the material in a cured cementitious material.

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